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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MATTHEW J. CREEDON and AMIT KUMAR

Appeal 2016-000244
Application 13/161,843
Technology Center 1700

Before: ROMULO H. DELMENDO, JEFFREY R. SNAY, and
LILAN REN, *Administrative Patent Judges*.

REN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants¹ appeal under 35 U.S.C. § 134 from a rejection² of claims 16–18, 20–22, 24, 25, 28, and 29. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ Unifrax I LLC is identified as the real party in interest. (Appeal Brief, filed February 13, 2015 (“App. Br.”), 3.)

² Non-Final Rejection mailed August 13, 2014 (“Act.”). The record before us shows that a final action was mailed November 6, 2013 and a non-final action was mailed on June 5, 2013.

CLAIMED SUBJECT MATTER

The claims are directed to a “thermally stable insulating mat [which] is provided for use in an exhaust gas treatment device, such as a catalytic converter and diesel particulate traps that are used in automotive exhaust systems.” (Spec. 1:7–9.)³ Claim 16, reproduced below, is illustrative of the claimed subject matter:

16. A mounting mat for an exhaust gas treatment device thermally stable to at least 900°C, wherein the mounting mat comprises inorganic fibers uniformly coated with a metal oxide comprising at least one of aluminum oxide, titanium oxide, zirconium oxide, or mixtures thereof; *wherein said fibers are uniformly coated with the metal oxide by precipitating metal hydroxide corresponding to the metal oxide on the fibers, followed by converting the precipitated metal hydroxide to the metal oxide; and wherein the inorganic fibers comprise at least one of high alumina polycrystalline fibers, mullite fibers, refractory ceramic fibers, aluminosilicate fibers, alumina-zirconia-silica fibers, alumina-magnesia-silica fibers, kaolin fibers, biosoluble fibers, or combinations thereof.*

(Claims Appendix, App. Br. 22 (emphases added).)

REFERENCES

Hölter	US 4,295,868	Oct. 20, 1981
Robinson	US 5,580,532	Dec. 3, 1996
Merry	US 7,550,118	Jun. 23, 2009
Liu	US 7,858,554	Dec. 28, 2010

³ Application 13/161,843, *Thermally Stable Inorganic Fibers for Exhaust Gas Treatment Device Insulating Mat*, filed June 16, 2011. We refer to the “843 Specification,” which we cite as “Spec.”

Frederic T. Wallenberger et. al., *Glass Fibers*, Constituent Materials, ASM Handbook, Vol. 21 (Composites), 2001 (“Wallenberger”).⁴

REJECTIONS

Claim 29 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. (Act. 2.)

Claims 16–18, 24, 25, and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hölder in view of Wallenberger. (Act. 3.)

Claim 20 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hölder in view of Wallenberger and Robinson. (Act. 7–8.)

Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hölder in view of Wallenberger and Liu. (Act. 8.)

Claims 21 and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hölder in view of Wallenberger and Merry. (Act. 9.)

Claim 29 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Merry in view of Hölder. (Act. 11.)

OPINION

Findings of fact throughout this Opinion are supported by a preponderance of the evidence of record.

Indefiniteness Rejection of Claim 29

Dependent claim 29 recites:

An exhaust gas treatment device comprising:
an outer metallic housing;
a fragile structure; and

⁴ The non-final office action refers to this reference as “Wallenberg.” (Act. 3.)

a mounting mat according to claim 16 disposed between the inner surface of the housing and the outer surface of the fragile structure to mount the fragile structure within the housing, wherein the mounting mat exerts a residual holding pressure on the fragile structure.

(Claims Appendix, App. Br. 24.)

The Examiner has taken the position it is “not clear what structure is a fragile structure” recited in claim 29. (Act. 2.)

We cannot agree with the Examiner’s analysis and conclusion. The ’843 Specification contains the following disclosure (page 1, lines 28–30; page 2, lines 1–14; page 8, lines 18–20):

The fragile catalyst support structure generally comprises a monolithic structure manufactured from a frangible material of metal or a brittle, ceramic material such as aluminum oxide, silicon dioxide, magnesium oxide, zirconia, cordierite, silicon carbide and the like. These materials provide a skeleton type of structure with a plurality of gas flow channels. These monolithic structures can be so fragile that even small shock loads or stresses are often sufficient to crack or crush them. In order to protect the fragile structure from thermal and mechanical shock and other stresses noted above, as well as to provide thermal insulation and a gas seal, a mounting mat is positioned within the gap between the fragile structure and the housing.

* * *

The mounting mat materials employed should be capable of satisfying any of a number of design or physical requirements set forth by the fragile structure manufacturers or the exhaust gas treatment device manufacturers. For example, the mounting mat material should be capable of exerting an effective residual holding pressure on the fragile structure, even when the exhaust gas treatment device has undergone wide temperature fluctuations, which causes significant expansion and contraction of the metal housing in relation to the fragile structure, which in

tum causes significant compression and release cycles for the mounting mats over a period of time.

* * *

The term “fragile structure” is intended to mean and include structures such as metal or ceramic monoliths or the like which may be fragile or frangible in nature, and would benefit from a mounting mat such as is described herein.

From the disclosure of the '843 Specification which includes an express definition of the term “fragile structure” as well as Figure 1 of the '843 Specification which shows fragile structure 18 as part of device 10, it is our judgment that one skilled in the relevant art would understand that the recited “fragile structure” is a fragile catalyst support structure such as a metal or ceramic monolith or the like. In this regard, it has long been held that breadth — even if it is undue breadth — is not indefiniteness. *See, e.g., In re Goffe*, 526 F.2d 1393, 1397–98 (CCPA 1975).

For these reasons, we cannot uphold the Examiner’s rejection of claim 29 on this ground.

*Obviousness Rejection of Claim 16*⁵

The Examiner finds, and Appellants do not dispute, that Hölter discloses treating fibers “with a metallic salt or solution, so that a metallic compound which is transformed by heating into the metal-oxide is accumulated on the fibers.” (*Compare* Act. 3–4 (citing Hölter 1:50–59) *with* App. Br. 8–9; *see also* Hölter 1:5–11.) It is undisputed that Hölter discloses that “hydroxide-gel” from “metal chlorides such as Ti, [sic.] CL₄, ZrCl₄, and AlCl₃” “will precipitate, which will bond extraordinarily well to the porous

⁵ Claims 17 and 18 stand or fall with claim 16. (App. Br. 7.)

glass fibers” and upon “heat treatment, the accumulated metal-hydroxides will be transformed into the respective metal-oxides.” (*Compare* Act. 4 (citing Hölder 4:1–13) *with* App. Br. 8–9.)

Combining Hölder with Wallenberger which discloses various types of glass fibers and their respective properties, the Examiner concludes that a skilled artisan would have substituted the particular species of glass fiber used in Hölder with other types of glass fiber in the same genus such as those disclosed in Wallenberger to arrive at claim 16. (Act. 5–6; *see also* Ans. 8.)⁶

Appellants argue that Hölder should be limited to the embodiment of silicic acid fibers and as a result, Hölder’s teaching of coating silicic acid fibers with metal oxides does not apply to any other type of fiber. (App. Br. 8.)⁷ Without citation support from Hölder or any other factual evidence, Appellants assert that “fibers other than silicic acid fibers, which do not undergo processes to remove non-silicic acid components from the fibers, would not need to be treated according to the process of Hölder, because doing so would not provide any benefit to fibers other than silicic acid fibers.” (*Id* (emphasis removed).)

⁶ Examiner’s Answer mailed July 23, 2015 (“Ans.”).

⁷ Although Appellants raise in the opening brief the issue of whether Wallenberger qualifies as prior art (App. Br. 7), Appellants’ Reply Brief does not dispute the 2001 copyright date of Wallenberger supplied in the Examiner’s Answer, which refers to a May 28, 2015 Action (mailed June 3, 2015). That Action provided a copy of the publication, clearly indicating a December 2001 printing date, which predates the earliest possible filing date of the ’843 Application. (*Compare* Ans. 4 *with* Reply Brief (Reply) 3–6.) A reasonable inference is drawn from the significantly earlier copyright and printing dates that the publication date would also predate the ’843 filing date.

Appellants' argument that "the process of Hölter would not be considered by persons of ordinary skill in the art to be suitable for fibers other than silicic acid fibers" is without factual support (Reply 4; *see also* App. Br. 8), and does not show "the product itself [is] new and unobvious." *In re Pilkington*, 411 F.2d 1345, 1348 (CCPA 1969) ("[T]he patentability of a claim to a *product* does not rest merely on a difference in the method by which that product is made. Rather, it is the product itself which must be new and unobvious.") Appellants do not address the Examiner's finding that Appellants fail to show a structural distinction of claim 16 from the prior art product. (*Compare* Ans. 6 *with* App. Br. 8 & Reply 3–4.)

Appellants also fail to explain why their argument is consistent with Hölter's express objective to produce "glass fibers" having a "tight connection" with metal oxides so that "excellent mechanical, thermal and chemical properties of the glass fibers are achieved." (*See id*; *see also* Hölter 1:65–69, 2:1–3.) Appellants do not disagree with the Examiner's reasoning that non-silicic acid components are not recited in claim 16 and therefore cannot support a patentable distinction over Hölter. (*Compare* Ans. 6 *with* Reply 3.)

Appellants also do not disagree with the Examiner's finding that the high silica content glass of Hölter is one species of the broader genus of silica. (*Compare* Ans. 8 *with* Reply 3–4.) Appellants' unexpected result argument does not identify error in the Examiner's analysis that substituting one species of a genus with another would have been obvious. (*Compare* App. Br. 9 *with* Act. 5–6; *Compare* Ans. 8 *with* Reply 3–4.) Appellants do not present factual evidence showing, for example, "that there is a difference between the results obtained" – the "mounting mat" having the recited fibers

in claim 16 in this case, “and those of the closest prior art, and that the difference would not have been expected by one of ordinary skill in the art at the time of the invention.” (*See* App. Br. 9; *Bristol-Myers Squibb Co. v. Teva Pharms. USA, Inc.*, 752 F.3d 967, 977 (Fed. Cir. 2014)). No harmful error has been identified with regard to the obviousness rejection of claim 16.

Obviousness Rejection of Claim 24

Claim 24 depends from claim 16 and recites “wherein the biosoluble fibers comprise calcium aluminate fibers.” (Claims Appendix, App. Br. 23.)

Appellants do not disagree that Wallenberger discloses glass fibers having calcium and aluminate but argue that the Examiner erred because the prior art fibers do not “have 10 weight percent of less silica.” (*Compare* App. Br. 10 *with* Act. 7.) Because claim 24, when read under the broadest reasonable interpretation, does not require a particular amount of silica of the fibers, no reversible error has been identified here. *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (holding that unclaimed features cannot impart patentability to claims).

Obviousness Rejection of Claim 25

Claim 25 depends from claim 16 and recites the mat of claim 16 “comprising a catalytic converter mounting mat.” (Claims Appendix, App. Br. 23.)

The Examiner rejects claim 25 over Hölter and Wallenberger. (Act. 7.) The Examiner additionally rejects claim 25 over Hölter, Wallenberger, and Merry. (*Id.* at 11.) Appellants argue that the Examiner erred because the fibrous materials in Hölter does not achieve the “purpose of a catalytic converter mat” and that “there is no teaching or suggestion in Merry that the

fibrous filter material of Hölder would be suitable as a catalytic converter mounting mat.” (App. Br. 11, 17.)

From the outset, claim 25, as it is currently written, is a product claim and does not require a particular purpose of the product. Appellants’ arguments, directed to a feature not recited in the claim, do not show patentable distinction over the prior art structure for either obviousness rejection. *Hiniker*, 150 F.3d at 1369 (holding that unclaimed features cannot impart patentability to claims).

Moreover, Appellants do not dispute the Examiner’s finding that “Merry teaches nonwoven mounting mats for catalytic converters.” (*Compare* Ans. 10 *with* Reply 5–6; *Compare* App. Br. 11–12, 17–18 *with* Act. 10–11.) To the extent that Appellants’ argument is that the mounting mats taught in Merry, when bodily incorporated with the fibrous material in Hölder, might not perform as the mounting mat recited in claim 25, “apparatus claims cover what a device *is*, not what a device *does*.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1468 (Fed. Cir. 1990). In any event, all of the features of one reference need not be bodily incorporated into another reference and the skilled artisan is not compelled to blindly follow the teaching of one prior art reference over the other without the exercise of independent judgment. *See Lear Siegler, Inc. v. Aeroquip Corp.*, 733 F.2d 881, 889 (Fed. Cir. 1984). No harmful error has been identified with regard to these obviousness rejections of claim 25.

Obviousness Rejection of Claim 28

Claim 28 depends from claim 16 and recites “wherein the inorganic fibers comprise calcia magnesia silicate fibers.” (Claims Appendix, App. Br. 23.)

Appellants argue that the Examiner erred because “calcia-magnesia-silicate fibers are described as having no or very little alumina” according to the ’843 Specification. (App. Br. 12.) Because claim 28, when read under the broadest reasonable interpretation, does not recite a particular amount of alumina of the calcia magnesia silicate fibers, no harmful error has been identified here. *Hiniker*, 150 F.3d at 1369 (holding that unclaimed features cannot impart patentability to claims).

With regard to the argument that neither references teaches or suggests “using the process of Hölter to treat calcia-magnesia-silicate fibers” (App. Br. 13), as we analyzed with regard to claim 16 *supra*, no structural distinction has been shown to impart patentability to claim 28.

Obviousness Rejection of Claim 29

Claim 29 depends from claim 16 and recites:

An exhaust gas treatment device comprising:
an outer metallic housing;
a fragile structure; and
a mounting mat according to claim 16 disposed between
the inner surface of the housing and the outer surface of the
fragile structure to mount the fragile structure within the
housing, wherein the mounting mat exerts a residual holding
pressure on the fragile structure.

(Claims Appendix, App. Br. 23.)

Appellants argue that the Examiner erred because there is no indication that the mat in Hölter “would be capable of operating at a higher temperature than the mat of Merry” and that the fiber in Hölter “would be capable of providing the necessary physical properties required by mounting mats for exhaust gas treatment devices[.]” (App. Br. 18.)

From the outset, claim 29 does not recite any physical property other than “a residual holding pressure.” Appellants’ argument is therefore directed to unclaimed features. Moreover, as we stated, “apparatus claims cover what a device *is*, not what a device *does*.” *Hewlett-Packard*, 909 F.2d at 1468. Appellants have not structurally distinguished claim 29 from the prior art device. In any event, all of the features of Merry need not be bodily incorporated into Hölter and the skilled artisan is not compelled to blindly follow the teaching of one prior art reference over the other without the exercise of independent judgment. *See Lear Siegler*, 733 at 889. No harmful error has been identified with regard to the obviousness rejection of claim 29.

Obviousness Rejections of Claims 20–22

Appellants’ arguments with regard to apparatus claims 20–22 (dependent claims of claim 16) are based on the premise that “the method of Hölter is focused on treatment of silicic acid fibers” and thus would not provide any benefit to other fibers found in the respective prior art references. (App. Br. 14, 15, 16.) As we analyzed with regard to claim 16 *supra*, Appellants have not presented structural distinctions over the prior art product and no harmful error has been identified with regard to the obviousness rejections of claims 20–22.

DECISION

The Examiner’s § 112 rejection of claim 29 is reversed.

The Examiner’s § 103 rejections of claims 16–18, 20–22, 24, 25, 28, and 29 are affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED